

WHAT IS CLAIMED IS:

1. A method of tuning a compressor stator blade, having a base portion and an airfoil portion, to achieve a desired natural frequency, comprising:

a) identifying the natural frequency of the compressor stator blade;

b) determining a different target natural frequency for the compressor stator blade; and

c) removing material from the base portion of the compressor stator blade in an amount and in a configuration that achieves the target natural frequency.

2. The method of claim 1 wherein step c) is carried out by forming at least one groove in the base portion.

3. The method of claim 2 wherein said groove has substantially parallel sides and a substantially flat base.

4. The method of claim 3 wherein said groove has a constant depth.

5. The method of claim 3 wherein said groove has a constant width.

6. The method of claim 3 wherein said groove has a constant depth and width.

7. The method of claim 2 wherein said groove extends fully across the width of the base portion.

8. The method of claim 1 wherein said base portion is substantially rectangular, with a pair of relatively longer side surfaces, a pair of relatively shorter end surfaces, a radially inner surface and a radially outer surface.

9. The method of claim 8 wherein step c) is carried out by forming at least one groove in the base portion.

10. The method of claim 9 wherein said groove extends entirely across said base portion from one side surface to the other side surface.

11. A method of tuning a compressor stator blade so as to achieve a desired natural frequency, wherein the stator blade has an airfoil portion and a base portion that is substantially rectangular, with a pair of relatively longer side surfaces, a pair of relatively shorter end surfaces a radially inner surface and a radially outer surface; the method comprising:

a) identifying the natural frequency of the compressor stator blade;

b) determining a different target natural frequency for the compressor stator blade; and

c) removing material from the base portion of the compressor stator blade in the form of at least one groove that is shaped to achieve the target natural frequency.

12. The method of claim 11 wherein said groove has substantially parallel sides and a substantially flat base surface.

13. The method of claim 11 wherein said groove has a constant depth.

14. The method of claim 12 wherein said groove has a constant width.

15. The method of claim 11 wherein said groove extends fully across the width of the base portion.

16. A compressor stator blade comprising an airfoil portion and a base portion, the base portion having a substantially solid rectangular shape; and at least one groove cut across a width dimension of said base portion, the groove having dimensions selected to obtain a predetermined natural frequency for the airfoil portion.

17. The compressor stator blade of claim 16 wherein said groove has substantially parallel sides and a substantially flat base surface.

18. The compressor stator blade of claim 16 wherein said groove has a constant depth.

19. The compressor stator blade of claim 16 wherein said groove has a constant depth and width.

20. The compressor stator blade of claim 16 wherein said base portion is substantially rectangular, with a pair of relatively longer side surfaces, a pair of

relatively shorter end surfaces, a radially inner surface and a radially outer surface, and wherein said groove extends completely across a width dimension of said base portion from one longer side surface to the other longer side surface.